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10/526,989

09/26/2005

Daniel Zauner

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EXAMINER

JENNISON, BRIAN W

ART UNIT

PAPER NUMBER

3742

MAIL DATE

DELIVERY MODE

06/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/526,989 | Applicant(s) ZAUNER ET AL. | |
| | Examiner BRIAN JENNISON | Art Unit 3742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, There is insufficient antecedent basis for, “the laser beam facing surface” recited at line 8 (also claim 3 line 6) and “the region” recited at line 7 in the claim (also note in claim 7). Such region must be clearly defined. It is noted that the claim was intended to be a method, however, the claim does not positively set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass.

In Claim 2, there is insufficient antecedent basis for, “the focal area” recited at line 3.

Claim 7 is indefinite as for the similar reason set forth in claim 1 above. The phrase “wherein said melting through is controlled by *pre-specifying the processing time* or by *providing a penetration sensor* which regulates the laser machining time” recited at lines 9-10 is so vague and can not be clearly understood since such alternative recitation is improper and make the scope of the claim uncertain. It appears that “processing time” was not the same as “penetration sensor”. There is also insufficient antecedent basis for “the processing time” in the claim. Similarly, it is noted that the claim was intended to be a method, however, the claim does not positively set forth any

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steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. Furthermore, the use of transitional phrase such as “wherein.....” is considered merely functional languages which may not have any patentable sense.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 3-6 rejected under 35 U.S.C. 102(b) as being anticipated by FUJIMOTO et al (JP 2002-178178 A cited by applicant) as evidence by Dunskey et al (US 2001/0045419).**

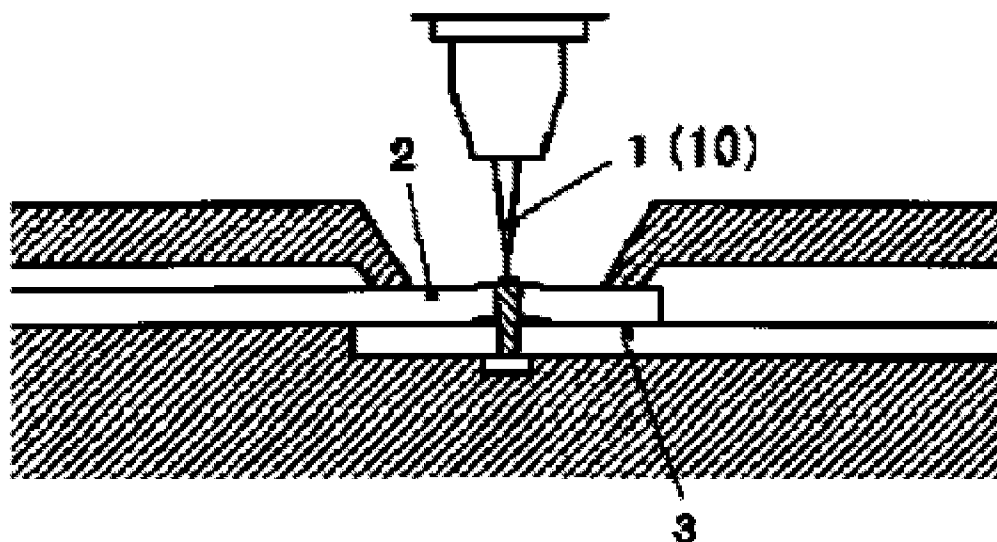
Fujimoto et al teaches (re claim 1, 3 and 6) a laser lap welding method in which a protrusion 2a is formed, by melting, on the surface of sheet 2 facing away from laser 1. (See Drawing 1 and Paragraphs [0018]—[0020]) (re claim 3) the protrusion on the side facing away from the laser is welded to a second sheet so that the zinc vapor can escape through the gap formed by the protrusion. (See Drawing 2 and Paragraphs [0021]-[0024]) (re claims 3 and 4) the sheets 2 and 3 are fused together by welding which is performed by a second laser so the weld line is the same line as protrusion 2a. (See Paragraph [0026]).

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Regarding Claims 1 and 3: The laser describes about the center of its machining area in a narrowing spiral. (This is merely an inherent characteristic shown by Dunskey et al (US 2001/0045419) See Figs. 21, 22, 32. which all show a narrowing spiral weld pattern.)

Regarding Claim 5, Fujimoto et al teaches a protrusion on the side facing the laser and the side facing away from the laser as shown in drawing 3.

[Drawing 3]



Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al in view of Milewski et al (US Patent No. 5,760,365).

The teachings of Fujimoto et al have been discussed above.

Fujimoto et al fails to teach (re claim 2) the method in claim 1 wherein the laser beam is not focused upon the surface.

Milewski et al teaches (re claim 2) "The changes in focal position shown in Table 3 were modeled for the V-groove weld joint geometry shown in FIGS. 9A, 9B and 9C. In these simulations the focal spot size was smaller than the joint gap at the surface having focus depths of 0.00", 0.05" and 0.10", respectively. (See column 12, lines 20-25) The area to be irradiated is 2mm, which is much greater than the focus depth. (See Column 5, Lines 30-45 "Focusing above the surface of the aluminum part" (See column 12, lines 33-34)

In view of Milewski et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to focus the laser beam at a point other than at the surface of the material to melt one side of the material, since it is

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known in the art to defocus the laser beam in an analogous process for the same purpose.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto as evidence by Dunskey et al (US 2001/0045419) in view of Leong et al (US Patent No. 6,329,635).

Fujimoto et al as evidence by Dunskey et al discloses substantially all features of the claimed invention as set forth above except for the-melting through is controlled by pre-specifying a processing time or by providing a penetration sensor which regulates the laser machining time.

Leong et al teaches a method for weld and laser heat treatment monitoring which involves determining depth penetration wherein the machining time can be controlled in term of a calibration curve. Where in order to-determine weld penetration from the weld monitor signal, a calibration curve is required. This curve can be constructed for a particular component from test welds made by varying the laser power level at constant speed. Defects are often caused by changes in beam power and part geometry rather than speed. After sectioning and polishing, the weld penetration can be measured and correlated with the DC signal from the weld monitor. Using the design specifications for the component of interest, upper and lower control limits could be determined for process monitoring as set forth at column 9, lines 33-43).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Fujimoto et al as evidence by Dunskey et al, the calibration curve to pre-specify the processing time as taught by Leong et al in order to control the melting through the object or sheet depend upon the laser power level, speed, geometry, or design specifications if so desired.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN JENNISON whose telephone number is (571)270-5930. The examiner can normally be reached on M-Th 7:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN JENNISON/
Examiner, Art Unit 3742

6/8/2009
/TU B HOANG/
Supervisory Patent Examiner, Art Unit 3742